Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application using (Original) (Currently Amended) (New) (Canceled) (Previously Presented) nomenclature, as recited in the below listing of claims.

1. (Currently Amended) A sensor for sensing the presence of a chemical vapor, the sensor adapted for interconnecting to an electrical monitor for measuring a reaction of the sensor to the chemical vapor, the sensor comprising,

a positive terminal, the positive terminal being conductive,

a negative terminal, the negative terminal being conductive, the terminals adapted for interconnection to the electrical monitor, and

a film of organic conductive polymer nanofibers extending between the positive and negative terminal for producing a change in conductivity between the positive terminal and the negative terminal as monitored by the electrical monitor when the film is exposed to the chemical vapor, the conductive polymer nanofibers consist of a single polymer.

2. (Original) The sensor of claim 1 wherein,

the positive terminal and the negative terminal are made of gold.

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3. (Original) The sensor of claim 1 wherein the positive terminal and the negative terminal are made of gold and the conducting polymer is polyaniline, the sensor further comprising,

a thiol surface layer disposed between the terminals and the film.

4. (Currently Amended) The sensor of claim 1 wherein,

the polymer nanofibers are selected from the group consisting of polyaniline nanofibers, polypyrrole nanofibers, polythiophene nanofibers, polytoluidine nanofibers, polyanisidine nanofibers, polymethylaniline nanofibers, polyethylaniline nanofibers, poly(2-alkoxyanilines) nanofibers and poly(2,5-dialkoxyanilines) nanofibers.

5. (Original) The sensor of claim 1 wherein,

the polymer nanofibers are polyaniline nanofibers, and

the chemical vapor is selected from the group consisting of an acid vapor and a basic vapor.

6. (Original) The sensor of claim 1 wherein,

the polymer nanofibers have diameters less than 500 nm and lengths less than 10 μm.

7. (Original) The sensor of claim 1 wherein,

the polymer nanofibers are polyaniline nanofibers having diameters less than 500 nm and lengths less than 10 μm.

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8. (Original) The sensor of claim 1 wherein,

the polymer nanofibers are polyaniline nanofibers having distributed diameters of 50 nm.

9. (Original) The sensor of claim 1 wherein,

the polymer nanofibers are polyaniline nanofibers having distributed diameters of 30 nm.

10. (Original) The sensor of claim 1 wherein,

the polymer nanofibers are polyaniline nanofibers having distributed diameters of 120 nm.

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11. (New) A sensor for sensing the presence of a chemical vapor, the sensor adapted for interconnecting to an electrical monitor for measuring a reaction of the sensor to the chemical vapor, the sensor comprising,

a positive terminal, the positive terminal being conductive,

a negative terminal, the negative terminal being conductive, the terminals adapted for interconnection to the electrical monitor, and

a film of organic conductive polymer nanofibers extending between the positive and negative terminal for producing a change in conductivity between the positive terminal and the negative terminal as monitored by the electrical monitor when the film is exposed to the chemical vapor,

wherein the positive terminal and the negative terminal are made of gold and the conducting polymer is polyaniline, the sensor further comprising,

a thiol surface layer disposed between the terminals and the film.

12. (New) The sensor of claim 1 wherein,

the nanofibers have a diameter of less than 500 nm.

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